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EXAMINER	
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ART UNIT	PAPER NUMBER
2879	

NOTIFICATION DATE	DELIVERY MODE
12/23/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/530,062	BETEILLE ET AL.	
	Examiner	Art Unit	
	ANTHONY T. PERRY	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 28-33, 36, and 39-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giron et al. (WO 02/06889) in view of Giraud et al. (US 5,846,854) in view of Terada et al. (US 6,280,559).

Giron et al. (US 2004/0053125) is from the same patent family as (WO 02/06889) and is used for citing the appropriate teachings.

Regarding claims 28, 36, and 47-49, Giron et al. teach an electrically controllable device comprising variable optical and/or energy properties or an electroluminescent device, comprising at least one carrier substrate (1) carrying an electroactive multilayer stack (3) that is placed between an electrode called the "lower" electrode and an electrode called the "upper" electrode, each electrode comprising at least one electrically conducting layer (2) in electrical connection with at least one current bus, wherein at least one of the current buses is in electrical connection with at least one current lead comprising either conducting wires (4) or a network of wires running over or within the layer (2) forming the electrode suitable for distributing, over the surface of at least one of the conducting layers (2), electrical energy so as to convert the electrical energy into light uniformly within the electroactive multilayer stack (3) (for example, see the abstract and Fig. 1).

Giron et al. state that the invention is applicable to other transparent electrochemical devices used for glazing (for example, see paragraph 0124), but does not specifically recite the device being a transparent electroluminescent glazing system. However, transparent electroluminescent devices are known electrochemical devices that are used for glazing having variable optical properties, wherein instead of the electroactive layer(s) taught by Giron et al. being sandwiched between an upper electrode and a lower electrode, an electroluminescent layer(s) is provided between the electrodes, as evidenced by Giraud et al. (for example, see col. 1, lines 17-28 and col. 8, lines 27-37). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably contemplate replacing the layers located between the upper and lower electrodes with electroluminescent layers in order to provide an electroluminescent system that takes advantage of the system of current leads taught by Giron et al.(provides an improved connection for the electrically controllable systems of the glazing type, wherein the current leads are hidden from view by a simple manufacturing process that maximizes the "active" area of the device (for example, see paragraphs 0018-0019)).

Giron et al. and Giraud et al. do not specifically teach the electroactive active layer(s) comprising a mutilayer stack comprising: at least one layer based on an active material 500 nm in thickness, such as for example sulfides like Mn:ZnS, Ce:SrS, or Mn:ZnzSiO4, Mn: Zn2GeO2 or Mn: ZnGa204, this layer being joined on either side to insulating layers made of a dielectric (Si3N4, AlzO3/TiO2 or BaTiO3) with a thickness of 150 nm. However, such a configuration including an active material such as ZnS:Mn sandwiched between two dielectric layers is known in the art of electroluminescent devices, as evidenced by Terada et al. (for example, see col. 30, lines 3-43). It has been held to be within the general skill of a worker in the art to select a known

material on the basis of its suitability for the intended use as a matter of obvious design choice. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have provided at least one at least one layer based on an active material 500 nm (considered to be approximately 7000 angstroms = 700 nm) in thickness, such as for example sulfides like Mn:ZnS, Ce:SrS, or Mn:ZnzSiO4, Mn: Zn2GeO2 or Mn: ZnGa204, this layer being joined on either side to insulating layers made of a dielectric (Si3N4, AlzO3/TiO2 or BaTiO3) with a thickness of 150 nm (considered to be approximately 100 nm - 220 nm) as the electroactive stack, as recited by Terada et al., since the selection of known materials for a known purpose is within the skill of the art.

Regarding claim 29, Giron et al. disclose the device as claimed in claim 28, wherein the conducting wires (4) are metal wires, for example made of tungsten (or copper), optionally covered with a surface coating, with a diameter of between 10 and 100 microns and preferably between 20 and 50 microns, which are straight or corrugated, and deposited on a sheet of thermoplastic (5) (for example, see paragraphs 0061 and 0072).

Regarding claim 30, Giron et al. disclose the device as claimed in claim 28, wherein the "lower" electrode comprises an electrically conducting layer (2) covering a region of the carrier substrate, especially one that is essentially rectangular, the lower electrode (2) being based on a doped metal oxide, especially tin-doped indium oxide called ITO or fluorine-doped tin oxide SnO_2:F, or aluminum-doped zinc oxide A1 :ZnO for example, optionally deposited on a prelayer of the silicon oxide, oxycarbide or oxynitride type, having an optical function and/or an alkali metal barrier function when the substrate is made of glass (for example, see paragraphs 0033-0037 and 0058).

Regarding claim 31, Giron et al. disclose the device as claimed in claim 28, wherein the conducting layer (2) forming the "lower" electrode may be a bilayer formed from an SiOC first layer of between 10 and 150 nm, especially 20 to 70 nm and preferably 50 nm thickness, surmounted by an SnO_2:F second layer of between 100 and 1000 nm, especially 200 to 600 nm and preferably 400 nm thickness (for example, see paragraph 0081).

Regarding claim 32, Giron et al. disclose the device as claimed in claim 31, wherein the device comprises a bilayer formed from a first layer based on SiO2 doped with a little metal of the A1 or B type, about 20 nm in thickness, surmounted by an ITO second layer of about 100 to 300 nm thickness (for example, see paragraph 0082).

Regarding claim 33, Giron et al. disclose the device as claimed in claim 31, wherein the device comprises a layer formed from ITO about 100 to 300 nm in thickness (for example, see paragraph 0089).

Regarding claim 39, Giron et al. disclose the device as claimed in claim 28, wherein at least one of the two electrodes, preferably the "upper" electrode, comprises an electrically conducting layer joined to a network of conducting wires/conducting strips (for example, see paragraph 0057).

Regarding claim 40 Giron et al. disclose the device as claimed in claim 39, wherein the conducting network (4) comprises a plurality of essentially metallic wires placed on the surface of a sheet (5) of polymer, especially of the thermoplastic type (for example, see paragraph 0060).

Regarding claim 41, Giron et al. disclose the device as claimed in claim 39, wherein the wires/strips are placed essentially parallel to one another, preferably in an orientation essentially parallel to the length or the width of the electrically conducting layer of the "upper" electrode,

the ends of said wire/strips extending beyond the substrate region covered by said electrically conducting layer on two of its opposed edges, especially by at least 0.5 mm (for example, see paragraph 0061).

Regarding claim 42, Giron et al. disclose the device as claimed in claim 39 wherein the ends of the wires/strips joined to the electrically conducting layer of the "lower" electrode are electrically connected to current buses in the form of flexible strips made of insulating polymer, these being covered on one of their faces with a conductive coating (for example, see paragraphs 0066 and 0069).

Regarding claim 43, Giron et al. disclose the device as claimed in claim 42, wherein said current buses are in the form of conducting clips that grip the carrier substrate (for example, see paragraph 0067).

Regarding claim 44, Giron et al. disclose the device as claimed in claim 42, wherein the set of current buses for the "lower" and "upper" electrodes are brought together in the form of a strip of approximately rectangular shape, formed from an electrically insulating and flexible polymer support, with, on two opposed edges, a conductive coating on one face and, on its other two edges, a conductive coating on the face on the opposite side from the previous one, preferably with a single external electrical connector (for example, see paragraphs 0069-0070 and claim 29).

Regarding claim 45, Giron et al. disclose the device as claimed in claim 28 wherein at least one of the current buses is in the form of a shim, especially a metal strip, or in the form of one or more conducting wires, or in the form of a point lead made of conducting material (for example, see paragraphs 0071-0072).

Regarding claim 46, Giron et al. disclose the device as claimed in claim 28 wherein the electroactive stack (3) covers a carrier substrate region which is a polygon, a rectangle, a diamond, a trapezoid, a square, a circle, a semicircle, an oval or any parallelogram (for example, see paragraphs 0073 and claim 31).

Regarding claim 50, Giron et al. teach the glazing unit comprising at least one flat glass pane and/or at least one curved glass pane (for example, see paragraph 0074).

Regarding claim 51, Giron et al. teach the glazing unit also includes at least one of the following coatings: an infrared-reflecting coating, a hydrophilic coating, a hydrophobic coating, a photocatalytic coating with anti-fouling properties, an anti-reflection coating, an electromagnetic shielding coating (for example, see 0075).

Regarding claim 52, Giron et al. teach the the carrier substrate is rigid, semi-rigid or flexible (for example, see paragraph 0022).

Regarding claim 53, Giron et al. disclose the method for glazing automobiles or buildings comprising applying the device as claimed in claim 28 to an automobile or building (for example, see paragraphs 0004-0005).

Claims 28 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giron et al. (WO 02/06889) in view of Giraud et al. (US 5,846,854) in view of Seo et al. (US 2002/0121860).

Giron et al. (US 2004/0053125) is from the same patent family as (WO 02/06889) and is used for citing the appropriate teachings.

Regarding claims 28 and 34, Giron et al. teach an electrically controllable device comprising variable optical and/or energy properties or an electroluminescent device, comprising

at least one carrier substrate (1) carrying an electroactive multilayer stack (3) that is placed between an electrode called the "lower" electrode and an electrode called the "upper" electrode, each electrode comprising at least one electrically conducting layer (2) in electrical connection with at least one current bus, wherein at least one of the current buses is in electrical connection with at least one current lead comprising either conducting wires (4) or a network of wires running over or within the layer (2) forming the electrode suitable for distributing, over the surface of at least one of the conducting layers (2), electrical energy so as to convert the electrical energy into light uniformly within the electroactive multilayer stack (3) (for example, see the abstract and Fig. 1).

Giron et al. state that the invention is applicable to other transparent electrochemical devices used for glazing (for example, see paragraph 0124), but does not specifically recite the device being a transparent electroluminescent glazing system. However, transparent electroluminescent devices are known electrochemical devices that are used for glazing having variable optical properties, wherein instead of the electroactive layer(s) taught by Giron et al. being sandwiched between an upper electrode and a lower electrode, an electroluminescent layer(s) is provided between the electrodes, as evidenced by Giraud et al. (for example, see col. 1, lines 17-28 and col. 8, lines 27-37). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably contemplate replacing the layers located between the upper and lower electrodes with electroluminescent layers in order to provide an electroluminescent system that takes advantage of the system of current leads taught by Giron et al.(provides an improved connection for the electrically controllable systems

of the glazing type, wherein the current leads are hidden from view by a simple manufacturing process that maximizes the "active" area of the device (for example, see paragraphs 0018-0019)).

Giron et al. and Giraud et al. do not specifically teach the electroactive active layer(s) comprising a mutilayer stack comprising: at least one HIL layer (3a) based on an unsaturated, especially polyunsaturated, heterocyclic compound such as a copper or zinc phthalocyanine or a PEDT/PSS compound 5 nm in thickness; an HTL layer (3b), 50 nm in thickness, of N,N'-diphenyl-N,N'bis(3-methylphenyl)- 1,1 '-biphenyl 4,4' diamine (TPD) or N,N'-bis-(1- naphthyl)-N,N'-diphenyl- 1,1 '-biphenyl-4,4'-diamine ((α-NPD); a layer (3c), 100 nm in thickness, of evaporated molecules of the complex A1Q3 (aluminum tris(8- hydroxyquinoline)) optionally doped with a few percent of rubrene, DCM or quinacridone; and an ETL layer (3d), 50 nm in thickness, of 2-(4'-biphenyl)-5-(4"-tert-butylphenyl)-1,3,4- oxadiazole (t-Bu- PBD) or 3-(4'-biphenyl)-4-phenyl-5-(4"-tert-butylphenyl)-l,2,4-triazole (TAZ). However, such a multi-layer stack comprising: a hole injecting layer of CuPc, a hole transporting layer of α-NPD, a light emitting layer of AlQ_3, and an electron transporting layer of TAZ, is known in the art of electroluminescent devices, as evidenced by Seo et al. (for example, see paragraphs 0188-0195). It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have provided : a hole injecting layer of CuPc, a hole transporting layer of α-NPD, a light emitting layer of AlQ_3, and an electron transporting layer of TAZ, as the electroactive stack, as recited by Seo et al., since the selection of known materials for a known purpose is within the skill of the art.

Seo et al. do not specifically recite the claimed thicknesses of each individual layer of the multilayer stack. However, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. Accordingly, it would have been obvious to one of ordinary skills in the art at the time the invention was made to provide an appropriate value for the thicknesses of each layer making up the multilayer stack, since discovering an optimum value of a result variable is considered within the skills of the art.

Claims 28, 35, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giron et al. (WO 02/06889) in view of Giraud et al. (US 5,846,854) in view of Towns et al. (US 6,416,885).

Giron et al. (US 2004/0053125) is from the same patent family as (WO 02/06889) and is used for citing the appropriate teachings.

Regarding claims 28, 35, 37, and 38, Giron et al. teach an electrically controllable device comprising variable optical and/or energy properties or an electroluminescent device, comprising at least one carrier substrate (1) carrying an electroactive multilayer stack (3) that is placed between an electrode called the "lower" electrode and an electrode called the "upper" electrode, each electrode comprising at least one electrically conducting layer (2) in electrical connection with at least one current bus, wherein at least one of the current buses is in electrical connection with at least one current lead comprising either conducting wires (4) or a network of wires running over or within the layer (2) forming the electrode suitable for distributing, over the surface of at least one of the conducting layers (2), electrical energy so as to convert the

electrical energy into light uniformly within the electroactive multilayer stack (3) (for example, see the abstract and Fig. 1).

Giron et al. state that the invention is applicable to other transparent electrochemical devices used for glazing (for example, see paragraph 0124), but does not specifically recite the device being a transparent electroluminescent glazing system. However, transparent electroluminescent devices are known electrochemical devices that are used for glazing having variable optical properties, wherein instead of the electroactive layer(s) taught by Giron et al. being sandwiched between an upper electrode and a lower electrode, an electroluminescent layer(s) is provided between the electrodes, as evidenced by Giraud et al. (for example, see col. 1, lines 17-28 and col. 8, lines 27-37). Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably contemplate replacing the layers located between the upper and lower electrodes with electroluminescent layers in order to provide an electroluminescent system that takes advantage of the system of current leads taught by Giron et al.(provides an improved connection for the electrically controllable systems of the glazing type, wherein the current leads are hidden from view by a simple manufacturing process that maximizes the "active" area of the device (for example, see paragraphs 0018-0019)).

Giron et al. and Giraud et al. do not specifically teach the electroactive active layer(s) comprising a mutilayer stack comprising: at least one HIL layer (3a) made of PEDT/PSS 50 nm in thickness; and a layer (3b) of polymers based on PPV, PPP, DO-PPP, MEH-PPV or CN-PPV, 100 nm in thickness, and having an upper electrode based on an electropositive material, such as aluminum. However, such a configuration including the HIL layer made of PED/PSS and a light emitting layer comprising a polymer is known in the art of electroluminescent devices, as

evidenced by Towns et al. (for example, see col. 3, lines 38-45). It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. Accordingly, it would have been obvious to one having ordinary skills in the art at the time the invention was made to have provided at least one HIL layer (3a) made of PEDT/PSS 50 nm in thickness; and a layer (3b) of polymers based on PPV, PPP, DO-PPP, MEH-PPV or CN-PPV, 100 nm in thickness as the electroactive stack and an aluminum upper electrode, as recited by Towns et al., since the selection of known materials for a known purpose is within the skill of the art.

Response to Arguments

Applicant's arguments filed 12/06/10 have been fully considered but they are not persuasive.

In response to applicant's argument that one of ordinary skill in the art would not look to electrochromic devices for a solution to arcing problems in electroluminescent devices, the examiner notes that the fact that the Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious.

Giraud et al. is cited merely to provide **evidenced** that transparent electroluminescent devices are known electrochemical devices that are used for glazing having variable optical properties, wherein instead of the electroactive layer(s) taught by Giron et al. being sandwiched between an upper electrode and a lower electrode, an electroluminescent layer(s) is provided between the electrodes. **Giron et al. state that the invention is applicable to other transparent electrochemical devices used for glazing (for example, see paragraph 0124).** It

would have been obvious to one of ordinary skill in the art at the time the invention was made to reasonably contemplate replacing the layers located between the upper and lower electrodes with electroluminescent layers in order to provide an electroluminescent system that takes **advantage of the system of current leads taught by Giron et al.(provides an improved connection for the electrically controllable systems of the glazing type, wherein the current leads are hidden from view by a simple manufacturing process that maximizes the "active" area of the device (for example, see paragraphs 0018-0019)).**

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Perry whose telephone number is **(571) 272-2459**. The examiner can normally be reached between the hours of 9:00AM to 5:30PM Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. **The fax phone number for this Group is (571) 273-8300.**

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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